African Invertebrates Vol. 50 (1) Pages 123–136 Pietermaritzburg June, 2009

# South African species of *Aneuclis* Förster, 1869 (Hymenoptera: Ichneumonidae: Tersilochinae)

#### Andrey I. Khalaim

Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St. Petersburg, 199034 Russia; hymenopt@zin.ru

#### ABSTRACT

Six new species of the ichneumonid genus *Aneuclis* are described from South Africa: *A. laminosa* sp. n., *A. lanternaria* sp. n., *A. larga* sp. n., *A. lasciva* sp. n., *A. lugubris* sp. n., and *A. vannoorti* sp. n. A key to known Afrotropical species of *Aneuclis* is provided.

KEY WORDS: Hymenoptera, Ichneumonidae, Tersilochinae, Aneuclis, Afrotropical, new species, identification key.

#### INTRODUCTION

This contribution continues the study of Afrotropical tersilochines started in my previous paper (Khalaim 2007), in which a key to genera is provided. This article covers the genus *Aneuclis* Förster, 1869. Species of *Aneuclis* have previously been described only from the Palaearctic Region (Yu *et al.* 2005).

Aneuclis belongs to the "Diaparsis" genus group, which also includes the genera Diaparsis Förster and Sathropterus Förster, and is characterized by the first metasomal segment having isolated glymma (not joined by a furrow to ventral part of postpetiole) or lacking glymma, the fore wing having the second recurrent vein interstitial or postfurcal, and the propodeum almost always having a basal keel. Aneuclis differs from the genus Diaparsis by the brachial cell of fore wing being widely open at apex and the posterior part of the postnervulus being absent (Khalaim 2007, fig. 6), and from the genus Sathropterus by the presence of a second recurrent vein and by the ovipositor being evenly upcurved, not sinuate apically.

Aneuclis is a medium-sized genus with 16 species described from the Palaearctic Region (Khalaim 2004). Townes (1971) also mentioned undescribed species from the Nearctic, Oriental and Afrotropical regions. Six species are described below from South Africa: A. laminosa sp. n., A. lanternaria sp. n., A. larga sp. n., A. lasciva sp. n., A. lugubris sp. n. and A. vannoorti sp. n. An identification key to known Afrotropical species of Aneuclis is provided.

In the Palaearctic Region, species of *Aneuclis* have been reared from coleopteran hosts of Chrysomelidae, Curculionidae and Nitidulidae on cruciferous plants, and are mainly associated with herbaceous landscapes. No details are known of the host preferences of Afrotropical species.

### MATERIAL AND METHODS

Material from the collections of the Iziko South African Museum in Cape Town was studied. Photographs were taken via a Leica MZ16 stereomicroscope with an integrated Leica camera. The images were assembled with Helicon Focus software and edited in Adobe Photoshop CS2. Terminology for morphological structures mainly follows Townes (1969). Types of the new species are deposited in the Iziko South African

Museum (SAMC) and the Zoological Institute of the Russian Academy of Sciences, St Petersburg (ZISP).

# TAXONOMY Genus *Aneuclis* Förster. 1869

Type species: *Isurgus rufipes* Szépligeti, 1899 (*Thersilochus maritimus* Thomson, 1889). Diagnosis: The genus includes small species with body length about 3.0 mm. Head and mesosoma more or less granulate, sometimes with smooth shining areas, impunctate or finely punctate. Head rather strongly narrowed behind eyes in dorsal view, temple distinctly shorter than eye width. Antenna filiform. Flagellum of Afrotropical species 14- or 15-segmented (13–23-segmented in Palaearctic species). Notaulus absent or weak, sometimes substituted by a short carina. Sternaulus absent or weak, in anterior part of mesopleuron. Propodeum with basal keel (sometimes indistinct) which is shorter than the apical area. Second recurrent vein interstitial or postfurcal. Brachial cell widely open at apex, with posterior part of postnervulus absent. First metasomal segment slender, with petiole more or less round in transverse section, with small isolated glymma (not joined by a furrow to ventral part of postpetiole) or without glymma. Ovipositor evenly upcurved, with shallow dorsal subapical depression, from short to very long.

All species are rather uniform and very few diagnostic characters are available. Males of *Aneuclis* are much more difficult to recognize than the females.

# Key to Afrotropical species of Aneuclis

1	Second recurrent vein interstitial (Figs 10, 16)2 Second recurrent vein postfurcal (Figs 2, 12)3
2	Vein 2 <i>rs</i> – <i>m</i> very short (Fig. 16). Clypeus yellow, darkened in upper part. Metacarp almost reaching apex of fore wing (Fig. 16). First tergite without glymma, with petiole finely striate laterally. Ovipositor sheath 1.3 times as long as first tergite (Fig. 18)
_	Vein 2 <i>rs</i> – <i>m</i> longer (Fig. 10). Clypeus entirely yellow (Fig. 5). Metacarp shorter, ending far short of apex of fore wing. First tergite with small but distinct glymma (Fig. 7), entirely smooth. Ovipositor sheath almost 3.0 times as long as first tergite (Fig. 6)
3	Legs mostly brown to fuscous (Fig. 19). Antenna black. Metasoma behind first segment dark brown, sometimes black. Ovipositor sheath about twice as long as first tergite
_	Legs yellowish, with hind leg sometimes slightly infuscate (Fig. 8). Antenna more or less yellowish or brownish yellow basally (Figs 9, 22). Metasoma behind first segment sometimes extensively yellow-brown (Fig. 8). Ovipositor sheath length various
4	Females
5 -	Ovipositor sheath as long as first tergite or shorter (Fig. 14) larga sp. n. Ovipositor sheath at least 1.8 times as long as first tergite

# Aneuclis laminosa sp. n.

Figs 1-3

Etymology: From Latin laminosus (light, bright).

Description:

Female.

Body length 2.45 mm.

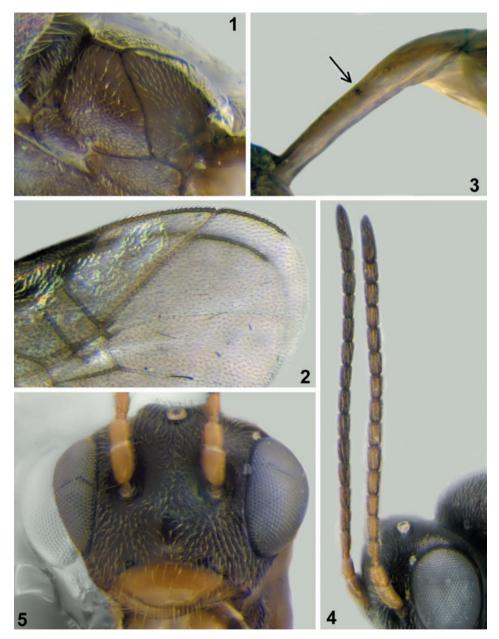
Head moderately roundly narrowed behind eyes in dorsal view; temple almost 0.66 times as long as eye width. Flagellum usually with 14 segments, in one specimen with 15 segments; all flagellomeres distinctly elongate. Upper tooth of mandible longer than lower tooth. Malar space subequal to basal width of mandible. Face and frons granulate, impunctate. Vertex very finely granulate, matt. Temple finely granulate to smooth and shining.

Mesonotum and mesopleuron granulate, sometimes also finely punctate. Notaulus substituted by a short sharp carina. Sternaulus in anterior part of mesopleuron usually weak and without transverse wrinkles. Propodeum entirely granulate, impunctate; basal keel distinct, about 0.38 times as long as apical area; spiracle separated from pleural carina by 1.5–2.0 diameters of spiracle; apical area rounded or pointed anteriorly (Fig. 1), its longitudinal carinae usually not reaching transverse carina.

Fore wing length 1.9 mm. First section of radial vein longer than width of pterostigma. Metacarp not quite reaching apex of fore wing. Second recurrent vein postfurcal (Fig. 2).

First tergite length 0.53 mm; tergite slender, entirely smooth, usually with distinct glymma (Fig. 3). Second tergite length 0.23 mm. Thyridia slightly elongate to twice as long as wide, sometimes very shallow and indistinct. Ovipositor with weak roundish tooth before dorsal subapical depression; sheath 1.28 mm, about 2.4 times as long as first tergite (2.1 times in one female).

Body dark brown to black. Palpi, mandibles (except reddish teeth), scape and pedicel of antenna ventrally, tegula and legs (sometimes hind coxa and femur slightly infuscate) brownish yellow. Pterostigma brown, sometimes with more or less distinct pallid marks basally and apically. Metasoma yellowish brown to dark brown, sometimes entirely brown.



Figs 1–5. New South African Tersilochinae: (1–3) *Aneuclis laminosa* sp. n.: (1) propodeum, dorsolateral view, (2) apical part of fore wing, (3) first tergite, lateral view; (4, 5) *A. lanternaria* sp. n.: (4) antennae, lateral view, (5) head, anterior view.

# Male. Unknown.

Holotype:  $^{\circ}$  'South Africa, W. Cape, Constantiaberge, 640m. 34°02.5'S 18°23.5'E, above road to mast overlooking Hout bay', '15–23 February 1994 S. van Noort, Mesic Mountain Fynbos, Malaise trap', 'SAM-HYM-P006183' (SAMC).

## Aneuclis lanternaria sp. n.

Figs 4-7, 10, 11

Etymology: From Latin *lanternarius* (carrying a lantern).

Description:

Female.

Body length 3.3 mm.

Head roundly narrowed behind eyes in dorsal view; temple short, 0.63 times as long as eye width. Flagellum of antenna with 14 segments; all flagellomeres, except apical one, distinctly elongate, mostly 1.4–1.6 times as long as wide (Fig. 4). Upper tooth of mandible longer than lower tooth. Malar space about as long as basal width of mandible. Face and frons granulate. Vertex very finely granulate, matt.

Mesonotum granulate, usually impunctate (indistinctly punctate in one paratype). Notaulus substituted by a short distinct carina. Mesopleuron granulate, usually indistinctly punctate centrally. Sternaulus in anterior part of mesopleuron weakly impressed, more coarsely granulate than the remaining mesopleuron, sometimes also with very shallow wrinkles. Propodeum evenly granulate, impunctate; basal keel 0.4 times as long as apical area; spiracle separated from pleural carina by about 1.5 diameters of spiracle; apical area more or less rounded anteriorly, with a pair of longitudinal carinae reaching transverse carina (Fig. 11).

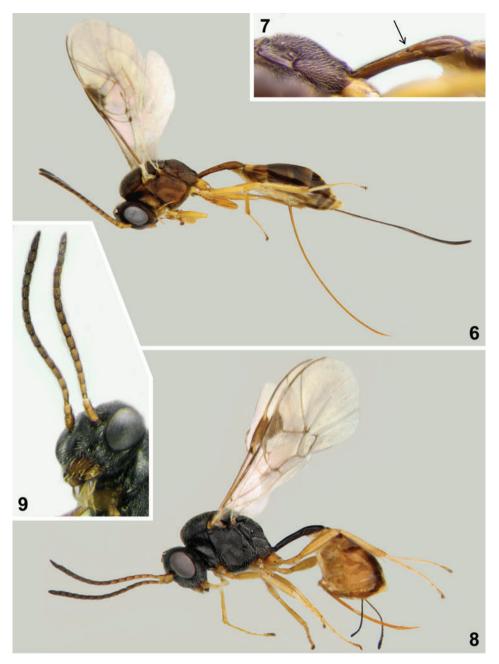
Fore wing length 2.26 mm. First section of radial vein about as long as width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein interstitial (Fig. 10). Vein 2*rs*–*m* moderately long (Fig. 10).

First tergite length 0.66 mm; tergite slender, almost entirely smooth, with petiole slightly striate laterally, with small deep glymma (Fig. 7). Second tergite length 0.28 mm. Thyridia very shallow (sometimes hardly discernible), about 2.5 times as long as wide. Ovipositor long; sheath 2.0 mm, 3.0 times as long as first tergite (Fig. 6).

Body brown to black with brownish hue. Palpi, mandibles (except teeth), clypeus, scape and pedicel of antenna, tegula and legs yellow to yellowish brown. Flagellum usually yellowish basally, evenly darkening towards apex. Pronotum reddish. Pterostigma brown, sometimes with pallid basal, apical and peripheral spots. Metasoma behind first segment usually brown to dark brown, with second tergite yellowish dorsally; sometimes tergites yellowish ventrally.

Male. Unknown.

Holotype: ♀ 'South Africa, W. Cape, Fernkloof Nat. Reserve, Hermanus, Die Mond se Kop, above Voëlklip [34°24′S:19°16′E]', '60 m, 19–20 Feb 1994, S. van Noort, Mesic Mountain Fynbos, Malaise Trap', 'SAM-HYM-P006185' (SAMC).



Figs 6–9. New South African Tersilochinae: (6, 7) *Aneuclis lanternaria* sp. n.: (6) habitus, lateral view, (7) propodeum and first tergite, lateral view; (8, 9) *A. larga* sp. n.: (8) habitus, lateral view; (9) head with antennae, lateral view.

## Aneuclis larga sp. n.

Figs 8, 9, 12-14

Etymology: From Latin largus (bountiful).

Description:

Female.

Body length 2.8 mm.

Head strongly and rather linearly narrowed behind eyes in dorsal view; temple almost 0.6 times as long as eye width. Flagellum with 14 segments; all flagellomeres distinctly elongate (Fig. 9). Upper tooth of mandible longer than lower tooth. Malar space slightly longer than basal width of mandible. Face and frons granulate, sometimes also finely punctate. Vertex very finely granulate, matt. Temple usually smooth and shining, sometimes finely granulate.

Mesonotum granulate and finely punctate. Notaulus absent or weak. Mesopleuron granulate, sometimes also finely punctate. Sternaulus in anterior part of mesopleuron oblique, moderately impressed and transversely wrinkled. Propodeum entirely granulate, impunctate; basal keel about 0.4 times as long as apical area; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area rounded (Fig. 13) or slightly pointed (producing angle about 85°) anteriorly, its longitudinal carinae weak anteriorly, usually reaching transverse carina.

Fore wing length 2.3 mm. First section of radial vein much longer than width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein postfurcal (Fig. 12).

First tergite length 0.68 mm, posterior width 0.18 mm; tergite slender, almost entirely smooth, with petiole slightly striate laterally, without glymma. Second tergite length 0.23 mm. Thyridia about  $1.5\times$  as long as wide. Ovipositor short, robust, with more or less distinct roundish tooth before dorsal subapical depression (Fig. 14); sheath 0.67 mm, as long as first tergite or slightly shorter.

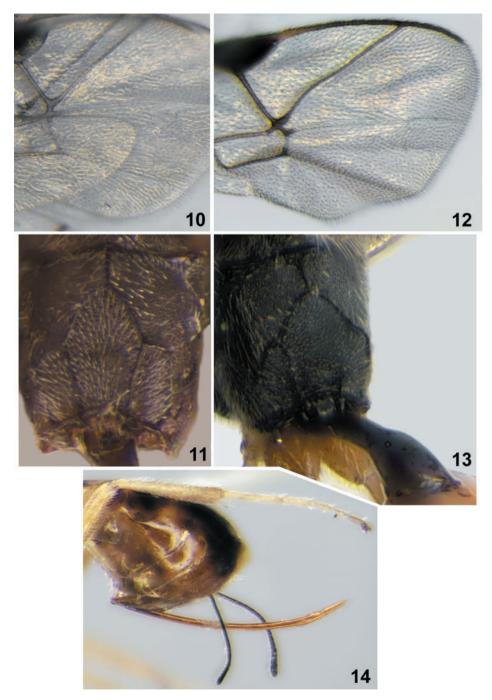
Body primarily black. Palpi, mandibles (except teeth), lower half of clypeus (upper half reddish below to black above), scape and pedicel of antenna (entirely or only ventrally), tegula and legs brownish yellow (rarely hind coxa brown basally). Flagellum usually brownish yellow basally, evenly darkening towards apex, or rarely entirely darkened. Pterostigma brown. Metasoma behind first segment usually brownish yellow ventrally to brown dorsally, or sometimes entirely brown or dark brown.

Male.

Similar to female. Flagellum of antenna with 14 segments. Malar space about as long as basal width of mandible. Sternaulus sometimes very weak.

Holotype: ♀ 'S. AFRICA, Kwazulu-Natal, Hlogoma, (5.95 km 123° SE Underberg) 29°48.326'S 29°33.286'E', '1-4.xii.2001, S van Noort, Malaise trap UN01-DP1-M11. Rye grass pasture on dolerite', 'SAM-HYM-P0024920' (SAMC).

Paratypes: SOUTH AFRICA: *KwaZulu-Natal*:  $3^{\circ}$  same data as holotype but rye grass and kikuyu pastures on dolerite (SAMC). *Northern Cape*:  ${}^{\circ}$  Kranskloof Farm, Uitkyk Site, 16.4 km 177° S Nieuwoudtville, 31°30.804'S:19°10.793'E, old wheat field on tillite, Malaise trap, 13–16.x.2000, S. van Noort (ZISP). *Eastern Cape*:  $2^{\circ}$   ${}^{\circ}$  Schilpad Laagte Farm, 15.4 km 226° SW Kirkwood, 33°31.653'S:25°22.620'E, valley bushveld (non-trashed), Malaise trap, 13–15.ii.2001, S. van Noort ( ${}^{\circ}$   ${}^{\circ}$  SAMC,  ${}^{\circ}$  ZISP);  ${}^{\circ}$  5 ${}^{\circ}$  Februarie Farm, 40.2 km 267° W Kirkwood, 33°33.124'S:25°03.043'E, valley bushveld (goat trashed), Malaise trap, 10–16.ii.2001, S. van Noort ( ${}^{\circ}$  3 ${}^{\circ}$  SAMC,  ${}^{\circ}$  2 ${}^{\circ}$  ZISP);  ${}^{\circ}$  same locality, date and collector, but sweep (SAMC). *Western* 



Figs 10–14. New South African Tersilochinae: (10, 11) *Aneuclis lanternaria* sp. n.: (10) subapical part of fore wing, (11) propodeum, dorsal view; (12–14) *A. larga* sp. n.: (12) apical part of fore wing, (13) propodeum and first tergite, dorsolateral view, (14) metasoma with ovipositor and hind leg, lateral view.

*Cape*: ♀ Cape Town, Tokai State Forest, Constantiaberge, above Donkerboskloof, 460 m, 34°02′S:18°23′E, mesic Mountain Fynbos on sandstone, near stream, bracken present, Malaise trap, 27.viii–5.ix.1993, S. van Noort (SAMC). TANZANIA: ♀ Mkomazi Game Reserve, Pangaro Plot, 3°53.61′S:37°46.65′E, open disturbed *Acacial Grewia* bushland, sweep, 23.iv.1996, S. van Noort (SAMC).

# Aneuclis lasciva sp. n.

Figs 15-18

Etymology: From Latin lascivus (playful, cheerful).

Description:

Female.

Body length 2.86 mm.

Head moderately narrowed behind eyes in dorsal view; temple 0.56 times as long as eye width. Flagellum of antenna with 14 segments; sub-basal flagellomeres about 1.6 times as long as wide, subapical flagellomeres 1.2 times as long as wide (Fig. 15). Upper tooth of mandible longer than lower tooth. Malar space subequal to basal width of mandible. Face and frons granulate. Vertex very finely granulate, matt. Temple smooth and shining.

Mesonotum finely granulate, impunctate. Notaulus substituted by a strong sharp carina about 1.5 times as long as second flagellomere width. Mesopleuron finely granulate, with fine punctures centrally. Sternaulus in anterior part of mesopleuron slightly impressed, with weak transverse wrinkles. Propodeum evenly granulate, impunctate, with short dorsal transverse carina near anterior margin (confining basal keel anteriorly); basal keel mostly distinct, 0.6 times as long as apical area, vanishing posteriorly near transverse carina; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area rounded anteriorly (Fig. 17), its longitudinal carinae distinct, reaching transverse carina.

Fore wing length 2.28 mm. First section of radial vein longer than width of pterostigma. Metacarp almost reaching apex of fore wing (Fig. 16). Second recurrent vein interstitial (Fig. 16). Vein 2rs-m very short (Fig. 16).

First tergite length 0.62 mm, posterior width 0.2 mm; tergite moderately slender, mostly smooth, with petiole very finely striate laterally, without glymma. Second tergite length 0.27 mm. Thyridia slightly elongate. Ovipositor more strongly upcurved near apex, with weak dorsal subapical depression (Fig. 18); sheath 0.8 mm, 1.3 times as long as first tergite.

Body primarily black. Palpi, mandibles (except teeth), scape and pedicel of antenna, tegula and legs yellow to brownish yellow. Clypeus yellow, darkened in upper part. Flagellum yellowish on basal half, evenly darkening towards apex. Pterostigma brown. Metasoma behind first segment yellow ventrally to brown and blackish dorsally.

Male. Unknown.

Holotype: ♀ 'South Africa, Kwazulu-Natal, Ramsgate, Butterfly Sanctuary, Malaise trap, 30°53.3'S: 30°20.4'E, 9.08–21.09.2004, M. Mostovski' (SAMC).

### Aneuclis lugubris sp. n.

Figs 19-21

Etymology: From Latin lugubris (mournful).



Figs 15–18. *Aneuclis lasciva* sp. n. (Tersilochinae): (15) head with antennae and anterior part of mesosoma, lateral view, (16) fore wings, (17) propodeum and first tergite, dorsolateral view, (18) metasoma with ovipositor and apexes of mid and hind legs, lateral view.



Figs 19–24. New South African Tersilochinae: (19–21) *Aneuclis lugubris* sp. n.: (19) hind leg, lateral view, (20) propodeum, dorsal view, (21) ovipositor, lateral view; (22–24) *A. vannoorti* sp. n.: (22) head with antenna, lateral view, (23) propodeum and first tergite, dorsolateral view, (24) ovipositor, lateral view.

Description:

Female.

Body length 2.56 mm.

Head roundly narrowed behind eyes in dorsal view; temple 0.66 times as long as eye width. Flagellum of antenna with 13 or 14 segments; all flagellomeres elongate. Upper tooth of mandible longer than lower tooth. Malar space subequal to or somewhat longer than basal width of mandible. Face and frons finely granulate and very finely punctate (sometimes punctures indistinct), often almost smooth and shining. Vertex very finely granulate to almost smooth, matt. Temple smooth and shining.

Mesonotum finely granulate and finely punctate (sometimes indistinctly). Notaulus usually more or less developed. Mesopleuron finely granulate, finely punctate centrally, sometimes almost smooth and shining. Sternaulus in anterior part of mesopleuron weakly impressed, as a rule with transverse wrinkles. Propodeum evenly granulate, impunctate; basal keel half as long as apical area (Fig. 20); spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area pointed anteriorly (Fig. 20) or sometimes rounded, its longitudinal carinae reaching or not reaching transverse carina.

Fore wing length 2.14 mm. First section of radial vein longer than width of pterostigma. Metacarp short, ending far short of apex of fore wing. Second recurrent vein postfurcal.

First tergite length 0.6 mm, posterior width 0.14 mm; tergite very slender, entirely smooth, without glymma. Second tergite length 0.27 mm. Thyridia shallow, 2.0–3.0 times as long as wide. Ovipositor evenly upcurved, with weak dorsal subapical depression (Fig. 21); sheath 1.3 mm, about twice as long as first tergite.

Primarily brown to dark brown species, with mesosoma sometimes black. Palpi and antenna fuscous or black; scape and pedicel sometimes slightly yellowish or brownish. Mandibles (except teeth), lower clypeus and tegula yellow to yellow-brown. Pterostigma brown to pale brown, usually with pallid marks basally and apically. Legs mostly brown to dark brown (Fig. 19); fore and mid femora widely yellowish or yellowish brown apically; hind femur with narrow pallid mark apically; tibiae more or less pale apically and sometimes also basally.

Male. Similar to female. Flagellum of antenna with 14 segments.

Holotype: ♀ 'S. Africa, N. Cape, Glen Lyon farm, Horn Site (4.38 km 153° SSE Nieuwoudtville) 31°24.268'S 19°08.788'E', '*Medicago* pastures on tillite, 11–14 October 2000, S van Noort, Malaise trap NW00-TM1-M19', 'SAM-HYM-P0024930' (SAMC).

# Aneuclis vannoorti sp. n.

Figs 22-24

Etymology: Named in honour of the collector of the type material, Dr S. van Noort (SAMC).

Description:

Female.

Body length 3.1 mm.

Head strongly and moderately roundly narrowed behind eyes in dorsal view; temple 0.57 times as long as eye width. Antenna with 14-segmented flagellum; all flagellomeres distinctly elongate (Fig. 22). Upper tooth of mandible longer than lower tooth. Malar space subequal to or slightly longer than basal width of mandible (distinctly shorter in female from Dikbome). Face and frons granulate. Vertex finely granulate, matt. Temple finely granulate and matt to smooth and shining.

Mesonotum granulate and indistinctly punctate. Notaulus substituted by a short, strong carina. Mesopleuron granulate, sometimes almost smooth and finely punctate centrally. Sternaulus in anterior part of mesopleuron oblique, slightly impressed, usually with more or less developed transverse wrinkles. Propodeum entirely granulate, impunctate; basal keel very short, 0.24–0.29 times as long as apical area; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area strongly acute anteriorly (Fig. 23), its longitudinal carinae weaker anteriorly, reaching or not reaching transverse carina.

Fore wing length 2.33 mm. First section of radial vein much longer than width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein postfurcal.

First tergite length 0.68 mm, posterior width 0.19 mm; tergite slender, smooth, usually with small glymma. Second tergite length 0.28 mm. Thyridia 1.5–2.0 times as long as wide, sometimes very shallow. Ovipositor short (Fig. 24); sheath 1.28 mm, almost 1.9 times as long as first tergite.

Body primarily black. Palpi, mandibles (except teeth), lower 2/3 of clypeus (upper third reddish blackish), scape and pedicel of antenna, tegula and legs (apical tarsomeres more or less infuscate) brownish yellow. Flagellum yellowish basally, evenly darkening towards apex. Pterostigma brown, with pallid marks basally and apically. Metasoma with segment 1 brown to black with brownish hue, following segments brownish yellow ventrally to brown or dark brown dorsally.

Male.

Similar to female. Flagellum of antenna with 14 segments. Malar space distinctly shorter than basal width of mandible.

Holotype: ♀ 'SOUTH AFRICA, E. Cape: ♀ Februarie Farm (40.2 km 267° W Kirkwood), 33°33.124'S: 25°03.043'E', '10–12 Feb 2001, S van Noort, Malaise trap, VB01-RIN-M22, Valley Bushveld (non-trashed)', 'SAM-HYM-P0024899' (SAMC).

Paratypes: SOUTH AFRICA: *Eastern Cape*:  $1^{\circ}$  3° same locality and collector but 14–16.ii.2001, goat trashed (2° SAMC,  $9^{\circ}$  ZISP);  $9^{\circ}$  same locality and collector as holotype but 12–14.ii.2001 (SAMC). *Western Cape*:  $1^{\circ}$  'Dikbome Merweville Koup [32°40'S:21°31'E] C.P.', 'H. Zinn Jan. 1953.' [underside of label] (SAMC).

### ACKNOWLEDGEMENTS

I am grateful to Dr Simon van Noort (SAMC) for the loan of valuable material, to Dr Mike Mostovski (Natal Museum, Pietermaritzburg, South Africa), Mr V.A. Kolyada and Prof. A.P. Rasnitsyn (both Paleontological Institute of the Russian Academy of Sciences, Moscow) for their help in organising this loan. I also acknowledge the hard work and helpful suggestions provided by two anonymous reviewers. The work was

supported by the Russian Foundation for Basic Research (grant no. 07-04-00454), and the Russian Academy of Sciences' programme "The Origin and Evolution of the Biosphere, Subprogramme II".

#### REFERENCES

- Khalaim, A.I. 2004. A review of the genera *Aneuclis* Förster and *Sathropterus* Förster (Hymenoptera, Ichneumonidae, Tersilochinae). *Entomologicheskoe obozrenie* [*Entomological Review*] **83** (3): 664–678. (in Russian)
- ——2007. First records of *Meggoleus*, *Heterocola* and *Phradis* (Hymenoptera: Ichneumonidae: Tersilochinae) from the Afrotropical region, with description of four new species. *African Invertebrates* 48 (2): 101–110.
- Townes, H.K. 1969. The genera of Ichneumonidae, Part 1. *Memoirs of the American Entomological Institute* 11: 1–300.
- ————1971. The genera of Ichneumonidae, Part 4. *Memoirs of the American Entomological Institute* 17: 1–372.
- Yu, D.S., van Achterberg, K. & Horstmann, K. 2005. World Ichneumonoidea 2004. Taxonomy, Biology, Morphology and Distribution. CD/DVD. Vancouver, Canada: Taxapad. (www.taxapad.com)